REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 24-43, 45-46, 58-59, 61-62, 65-70, 77-81, 97-100 and 104-106 are pending. Claims 44, 47-57, 60, 63-64, 71-76, 82-96 and 101-103 have been cancelled. Claims 24, 58, 59, 61, 62, 66, 69, 70, 77-81, 97, 98 and 104 have been amended.

I. Allowable subject matter

Applicant appreciates the indication that claims 77-80, 87 and 97 would be allowed if rewritten in independent form. In response, claims 77, 80 and 97 have been rewritten in independent form and amended to overcome the § 112 rejection. The range from allowable claim 87, modified to overcome the § 112 rejection, has been inserted into independent claims 24, 59 and 104. Claim 78 has been amended to overcome the § 112 rejection and rewritten in independent form to recite the ranges from both allowable claims 78 and 79.

II. Status of independent claims

Claims 24, 59, 61, 69, 77, 78, 80, 97, 98 and 104 are written in independent form. Applicant believes that all claims are now in condition for allowance for the following three reasons.

Independent claims 24, 59, 77, 78, 80 and 104 recite a range of 13.5 to 1120.08 BTU per cubic foot or subranges thereof. A range of 12.33 to 1120.08 BTU per cubic foot was previously presented in allowable dependent claim 87 and was indicated to be allowable in paragraph 17 of the Office Action. The lower end of the range was changed from 12.33 to 13.5 BTU/ft^3 to overcome a § 112 rejection, as will be discussed in the following section.

Thus, Applicant respectfully submits that claims 24, 59, 77, 78, 80 and 104 are in condition for allowance.

Independent claims 61, 69 and 98 recite a range of 1.34 to 10.3 BTU per square foot. This range corresponds to the range of 13.5 to 104.08 BTU per cubic foot that was recited in allowable claim 77 (with the lower end point changed from 12.33 to 13.5 BTU/ft^3 to overcome the § 112 rejection). Thus, Applicant respectfully submits that claims 61, 69 and 98 are allowable at least for the same reason as claim 77.

Claim 97 was indicated as being allowable. This claim has been rewritten in independent form and amended to overcome the § 112 rejection. Therefore, Applicant respectfully submits that all independent claims are now in condition for allowance.

II. Section 112 rejections

Claims 47, 49, 55, 61, 63-70, 88-95 and 98-103 have been rejected under § 112, ¶ 1 as failing to comply with the written description requirement. The Office Action noted that the origin of the 19.98 BTU/hr Q_{equil} value was not evident and that the claimed thermal loading of 1.22 BTU per square foot which was derived from the Q_{equil} value of 19.98 BTU/hr constituted new matter.

As noted in paragraph 4 of the Office Action, page 21, line 27 of the specification discloses a Q_{equil} value of 19.9 BTU/hr, which is rounded to the first decimal place. Thus, using the Q_{equil} value of 19.9 BTU/hr instead of 19.98 BTU/h, results in the following values of thermal loading: 1.34 BTU per square foot[1] and 13.5 BTU per cubic foot[2].

[1] Taking the data from Example 2 on pages 23-24 of the specification, T_e=15F, Q_{loss}=20.8 B/hr, Q_{equil} =19.9 B/hr, h_f=105 B/lbm, A_f=0.67 ft^2, provides a $(Q_{loss}-Q_{equil})/h_f$ = (20.8-19.9)/105 = 0.009 lbm/hr = 0.9 BTU/hr. Dividing the BTU/hr value by the A_f value provides 0.9/.67= 1.34 BTU/ft^2 for a one hour design.

[2] The values of thermal loading in BTU/ft^3 are calculated from examples 1 and 2 in a similar way as the values of thermal loading in BTU/ft^2. In example 2 on page 21 of the specification, the thickness x1 + x2 + x3 + x4 is 1 and 3/16" (if x3, phase change material thickness, is estimated to be zero when small) and the phase

Applicant respectfully submits that the amendments changing the lower end of the thermal loading ranges from 1.22 to 1.34 BTU per square foot and from 12.33 to 13.5 BTU per cubic foot in the independent claims overcomes this rejection.[3]

Claims 98-106 have been rejected under § 112, ¶ 1 as failing to comply with the written description requirement due to the upper ranges recited in these claims. In response, the upper ranges in independent claims 98 and 104 have been changed to the upper range that was indicated to be allowable. Applicant respectfully submits that this overcomes the rejection.

Claims 76, 81, 84, 91, 93 and 94 have been rejected under § 112, ¶ 1 as failing to comply with the written description requirement. Claims 76, 84, 91, 93 and 94 have been cancelled, thus mooting the § 112, ¶ 1 rejections thereof. Claim 81 has been amended to now recite the range from allowable claim 78 to overcome the § 112, ¶ 1 rejection.

III. Prior Art rejections

Various groupings claims were rejected under § 102(b) and § 103(a) over Bryant or Sayler alone or in combination with secondary references. These rejections are respectively traversed.

Claims 24, 59, 61, 69, 77, 78, 80, 97, 98 and 104 are written in independent form. Applicant believes that all claims are now in condition for allowance for the following three reasons.

Independent claims 24, 59, 77, 78, 80 and 104 recite a range of 13.5 to 1120.08 BTU per cubic foot or subranges thereof. A range of 12.33 to 1120.08 BTU per cubic foot was previously presented in allowable dependent claim 87 and was indicated to be allowable in

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change material may dispersed through its thickness as in Figure 1. Using this thickness, the BTU/ft^2 values may be easily converted to BTU/ft^3 values as follows: 1.34 BTU/ft^2 x 1/(1 3/16" + 0") x 12"/ft = 13.5 BTU/ft^3.

[3] The amendment to the independent claims 24, 59, 61, 69, 77, 97, 98 and 104 should not be considered to be a surrender of any claim scope under the doctrine of equivalents of values of thermal loading below the lower end points of the ranges recited in these claims.

paragraph 17 of the Office Action[4]. The lower end of the range was changed from 12.33 to 13.5 BTU to overcome the § 112 rejection, as discussed above. Thus, Applicant respectfully submits that claims 24, 59, 77, 78, 80 and 104 are in condition for allowance.

Claim 97 was indicated as being allowable. This claim has been rewritten in independent form and the thermal loading value was amended to overcome the § 112 rejection.

Independent claims 61, 69 and 98 recite a range of 1.34 to 10.3 BTU per square foot[5]. In contrast, Page 11, line 18 of the Office Action asserts that the prior art teaches ranges of 28.4 to 75 BTU per square foot[6]. Thus, the claimed range is outside from the range that is asserted to be taught by the prior art.

Furthermore, allowable claim 77 recited a range of 12.33 to 104.08 BTU per cubic foot. After the 12.33 value is changed to 13.5 to overcome the § 112 rejection, the range of 1.34 to 10.3 BTU per square foot recited in claims 61, 69 and 98 corresponds to the range of 13.5 to 104.08 BTU per square foot[7] based on the range in allowable claim 77.

Therefore, Applicant respectfully submits that all independent claims are now in condition for allowance.

IV. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The

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[4] Page 11, line 18 of the Office Action asserts that the prior art teaches ranges of 3600 to 9494.5 BTU per cubic foot. The amendment to independent claims 24, 59, 80 and 104 should not be considered to be a surrender of any claim scope under the doctrine of equivalents of values of thermal loading between 1120.08 and 3600 BTU per cubic foot.

[5] The value of 10.3 BTU/ft^2 is calculated as follows: T_e=5F, Q_{loss} - Q_{equil} =6.8, h_f=105 B/lbm, A_f=0.67 ft^2, provides a (Q_{loss}-Q_{equil})/h_f = 6.8/105 = 0.065 lbm/hr = 6.87 BTU/hr. Dividing the BTU/hr value by the A_f value provides 6.87/.67= 10.3 BTU/ft^2 for a one hour design.

[6] The amendment to independent claims 61, 69 and 98 should not be considered to be a surrender of any claim scope under the doctrine of equivalents from values of thermal loading between 10.3 and 28.4 BTU per square foot.

[7] 1.34 BTU/ft^2 x 1/(1 3/16" + 0") x 12"/ft = 13.5 BTU/ft^3; 10.3 BTU/ft^2 x 1/(1 3/16" + 0") x 12"/ft = 104.08 BTU/ft^3.

Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date 1/22/04 By _____

FOLEY & LARDNER
Customer Number: 22428
Telephone: (202) 672-5300
Facsimile: (202) 672-5399

Leon Radomsky
Attorney for Applicant
Registration No. 43,445

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.